

REC'D 06 JAN 2005

IP/2005/050015



WIPO

Europäisches  
Patentamt

PCT

European  
Patent Office

Office européen  
des brevets

Bescheinigung

Certificate

Attestation

Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. Patent application No. Demande de brevet n°

04100259.3

**PRIORITY  
DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH RULE 17.1(a) OR (b)

Der Präsident des Europäischen Patentamts;  
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets  
p.o.

R C van Dijk





Anmeldung Nr:  
Application no.: 04100259.3 ✓  
Demande no:

Anmeldetag:  
Date of filing: 26.01.04 ✓  
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

Koninklijke Philips Electronics N.V.  
Groenewoudseweg 1  
5621 BA Eindhoven  
PAYS-BAS

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:  
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.  
If no title is shown please refer to the description.  
Si aucun titre n'est indiqué se référer à la description.)

A safety razor apparatus having a pivotable grip portion

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s)  
revendiquée(s)  
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/  
Classification internationale des brevets:

B26B19/00

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of  
filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL  
PT RO SE SI SK TR LI



A safety razor apparatus having a pivotable grip portion

The invention relates to a safety razor apparatus having a blade assembly comprising two guiding members each having a surface for abutting against the skin, and one or more blades being located between said two guiding members, wherein the cutting edge of each blade and said surfaces are positioned substantially in one plane, and the apparatus  
5 having a grip portion being pivotal relative to said blade assembly about a pivot axis, wherein the pivot axis is positioned parallel with respect to said cutting edge. In case of more than one blade, the respective cutting edges are positioned parallel.

10 A safety razor apparatus of the kind mentioned in the opening paragraph is generally known. In case of more than one blade, the respective cutting edges are positioned parallel. Preferably there are at least two blades. Furthermore, preferably the guiding member abutting against the skin in front of the blades is a skin stretching member. Between the skin and the surface of that skin stretching member is a relatively high friction when the surface is  
15 pushed against the skin. Therefore the skin is stretched in order to facilitate the shaving action of the blades. The guiding member abutting the skin behind the blades is preferably a lubrication member. The friction between the skin and the surface of that member is relatively low, and the lubrication member may contain a lubrication substance or the like.

20 Safety razors wherein the grip portion has a fixed position with respect to the blade assembly are well known. Therein the position of the grip portion with respect to the blade assembly is chosen to satisfy the shaving requirements of the majority of the shaving persons, whereby an acceptable average is achieved for shaving all facial regions to be shaved. However, this results in a non optimal compromise for the individual person and for the different facial regions.

25 In order to overcome that problem, safety razors having a pivoting or hinging grip portion are developed, wherein the grip portion is pivotally connected to the blade assembly. Thereby the blade assembly can follow the curved surface of the skin during the shaving operation, while the grip portion is moved in a certain angle relative to the skin by the hand of the shaving person. The pivot axis of the pivoting movement of the blade

assembly has to be positioned substantially between the two guiding members to ensure a stable positioning of the blade assembly when it is pushed by the grip portion towards the skin.

5 In theory, it seems that the best location of the pivot axis with respect to the blade assembly can be calculated, whereby an optimal distribution of the pushing force over the two guiding members is achieved. However, in practice it has appeared that such optimal positioning of the pivot axis is often not sensed as the best position by the shaving person. Often the shaving person puts his finger on the blade assembly to control the position of the blade assembly in a way he likes it, thereby expressing his feeling that the position is not  
10 satisfactory.

Furthermore it has appeared that different personal circumstances, such as the condition and the type of skin and beard, result in a different optimal location of the pivot axis with respect to the blade assembly.

15

An object of the invention is to provide a safety razor apparatus, by means of which the properties and the functioning of the apparatus can be adapted to the personal circumstances by the shaving person.

20 In order to achieve said object, a safety razor apparatus in accordance with the invention is characterized in that a location of said pivot axis is adjustable with respect to said blade assembly. Preferably, the pivot axis can be fixed in two or more positions with respect to the blade assembly. As a result, the effect of the force exerted by the grip portion on the blade assembly can be changed according to the personal desire and need of the shaving person. By adjusting the pivot axis the characteristics of the shaving system can be changed  
25 from precise but slightly aggressive, for which purpose the pivot axis is located near the first blade (the front blade), to skin friendly but less precise, for which purpose the pivot axis is located in front of the first blade, near the stretching member.

In one preferred embodiment the distance between said pivot axis and said one plane is less than 3 mm, preferably less than 1 mm. A small distance between the pivot axis  
30 and said plane ensures a stable position of the blade assembly when it is pushed against the skin, so that the location of the pivot axis can be varied without affecting the stability of the blade assembly, even in case the pivot axis is located near the stretching member.

Preferably, said pivot axis can be fixed at different locations in a plane parallel to said one plane. As a result, the distance between the skin and the pivot axis remains the

same when changing the location of the pivot axis, so that said distance can be small at all locations of the pivot axis.

In order to achieve an adjustable pivoting or hinging connection between the grip portion and the blade assembly of the safety razor, many designs can be applied.

- 5 However, in one preferred embodiment, the blade assembly can hinge around a pin, which pin is attached to said grip portion, wherein the blade assembly is provided with means for engaging said pin. Preferably, said means for engaging said pin comprise a number of recesses at different locations for accommodating said pin at such different locations.

- 10 In order to facilitate the fixation of the pin in a desired position, preferably, said means for engaging said pin comprise clamping means for holding said pin in a recess, wherein said clamping means enable displacement of the pin from a recess to another recess when exerting a predetermined force. As a result, the location of the pivot axis can be easily changed by the shaving person without making use of any tool or so, even during the shaving operation.

- 15 In one preferred embodiment, said pin is positioned between a first engaging member provided with a number of recesses and a second engaging member having a surface facing said first engaging member, wherein said second engaging member pushes said pin towards said first engaging member, for example by spring means.

- 20 The invention also relates to a blade assembly for a safety razor apparatus as described above. Such blade assembly comprises two guiding members each having a surface for abutting against the skin, and one or more blades being located between said two guiding members. The cutting edge of each blade and said surfaces are positioned substantially in one plane. The blade assembly comprises engaging means for pivotally connecting the blade assembly to the grip portion of the safety razor apparatus, wherein the pivot axis is positioned  
25 parallel with respect to said cutting edge. Said engaging means comprise different locations for the pivot axis with respect to said blade assembly.

- 30 Embodiments of a safety razor apparatus according to the invention will be described in the following, reference being made to the drawing, in which:

Fig. 1 is a perspective view of a safety razor apparatus in accordance with the invention;

Fig. 2 schematically shows a connection between a grip portion and a blade assembly of the safety razor apparatus shown in Fig. 1; and

Fig. 3 shows a portion of Fig. 2, indicated by the striped circle III in Fig. 2.

According to figure 1, the safety razor apparatus is provided with a grip  
5 portion 1 and a blade assembly 2. The grip portion 1 comprises a part 3 that can be held by  
the hand of a shaving person, and a part 4 provided with a hinging connection with the blade  
assembly 2. Between part 3 and part 4, the grip portion 1 comprises a broadened part 5  
having a larger width than said part 3.

Part 4 of the grip portion 1 is provided with two arms 6. Between the ends of  
10 the arms 6 (not shown in figure 1) there is a pin 8 (see figure 2), forming the pivot axis for  
the blade assembly 2.

The blade assembly 2 is provided with a skin stretching member 9 and a  
lubrication member 10. Between the skin stretching member 9 and the lubrication member 10  
there are three blades 11,12,13 having three parallel cutting edges 14 (see figure 2). The  
15 three blades 11-13 are mounted in a fixed position in the blade assembly 2 and the edges 14  
are positioned substantial in a plane through the surface of the stretching member 9 and the  
surface of the lubrication member 10. During the shaving operation the skin is substantial  
located in that plane.

Figure 2 schematically shows the hinging connection between the grip portion  
20 1 and the blade assembly 2. The metal pin 8 is mounted at the end of the grip portion 1, and  
the blade assembly 2 can hinge around that metal pin 8. Figure 2 shows a situation wherein  
the pin 8 is located near the stretching member 9, which location is at a relative large distance  
in front of the cutting edge 14 of the first blade 11.

To enable the adjustment of the location of the pivot axis (pin 8) with respect  
25 to the blade assembly 2, the blade assembly according to this example is provided with a first  
engaging member having five parallel slots 17. The slots 17 are open grooves, all parallel  
with the cutting edges 14. Each of the slots 17 can accommodate pin 8, and the pin 8 is  
pushed in one of the slots 17 by means of a second engaging member formed by pushing  
plate 18, which plate 18 is pressed downwardly by the spring elements 19, as is shown in  
30 figure 2. Pin 8 can be moved to an other slot 17 by displacing plate 18 in upward direction,  
against the pushing force of spring elements 19. Such movement of the pin 8 is shown figure  
3, indicated by arrow 20.

As shown in figure 3, pin 8 can be moved from a position near the stretching  
member 9 to a position near the first cutting edge 14. Thereby the shaving behavior of the



safety razor apparatus will change, so that the shaving person can adjust said behavior according to his desire.



## CLAIMS:

1. A safety razor apparatus having a blade assembly (2) comprising two guiding members (9,10) each having a surface for abutting against the skin, and one or more blades (11,12,13) being located between said two guiding members (9,10), wherein the cutting edge (14) of each blade (11,12,13) and said surfaces are positioned substantially in one plane, and  
5 the apparatus having a grip portion (1) being pivotal relative to said blade assembly (2) about a pivot axis (8), wherein the pivot axis (8) is positioned parallel with respect to said cutting edge (14), characterized in that a location of said pivot axis (8) is adjustable with respect to said blade assembly (2).
- 10 2. A safety razor apparatus as claimed in claim 1, characterized in that the pivot axis (8) can be fixed in two or more positions with respect to the blade assembly (2).
3. A safety razor apparatus as claimed in any one of the preceding claims, characterized in that said pivot axis (8) can be fixed at different locations in a plane parallel  
15 to said one plane.
4. A safety razor apparatus as claimed in any one of the preceding claims, characterized in that the blade assembly (2) can hinge around a pin (8), which pin (8) is attached to said grip portion (1), wherein the blade assembly (2) is provided with means  
20 (17,18) for engaging said pin (8).
5. A safety razor apparatus as claimed in claim 4, characterized in that said means (17,18) for engaging said pin (8) comprise a number of recesses (17) at different locations for accommodating said pin (8) at such different locations.  
25
6. A safety razor apparatus as claimed in claim 4 or 5, characterized in that said means (17,18) for engaging said pin (8) comprise clamping means (18,19) for holding said pin (8) in a recess (17).

7. A safety razor apparatus as claimed in claim 6, characterized in that said clamping means (18,19) enable displacement of the pin (8) from a recess (17) to another recess (17) when exerting a predetermined force.

5 8. A safety razor apparatus as claimed in any one of claims 4-7, characterized in that said pin (8) is positioned between a first engaging member provided with a number of recesses (17) and a second engaging member (18) having a surface facing said first engaging member, wherein said second engaging member (18) pushes said pin (8) towards said first engaging member.

10

9. A blade assembly for a safety razor apparatus as claimed in any one of the preceding claims.

## ABSTRACT:

A safety razor apparatus having a blade assembly (2) comprising two guiding members (9,10) each having a surface for abutting against the skin, and one or more blades (11,12,13) being located between said two guiding members (9,10), wherein the cutting edge (14) of each blade (11,12,13) and said surfaces are positioned substantially in one plane. The apparatus has a grip portion (1) being pivotal relative to said blade assembly (2) about a pivot axis (8), wherein the pivot axis (8) is positioned parallel with respect to said cutting edge (14). A location of said pivot axis (8) is adjustable with respect to said blade assembly (2).

Fig. 2



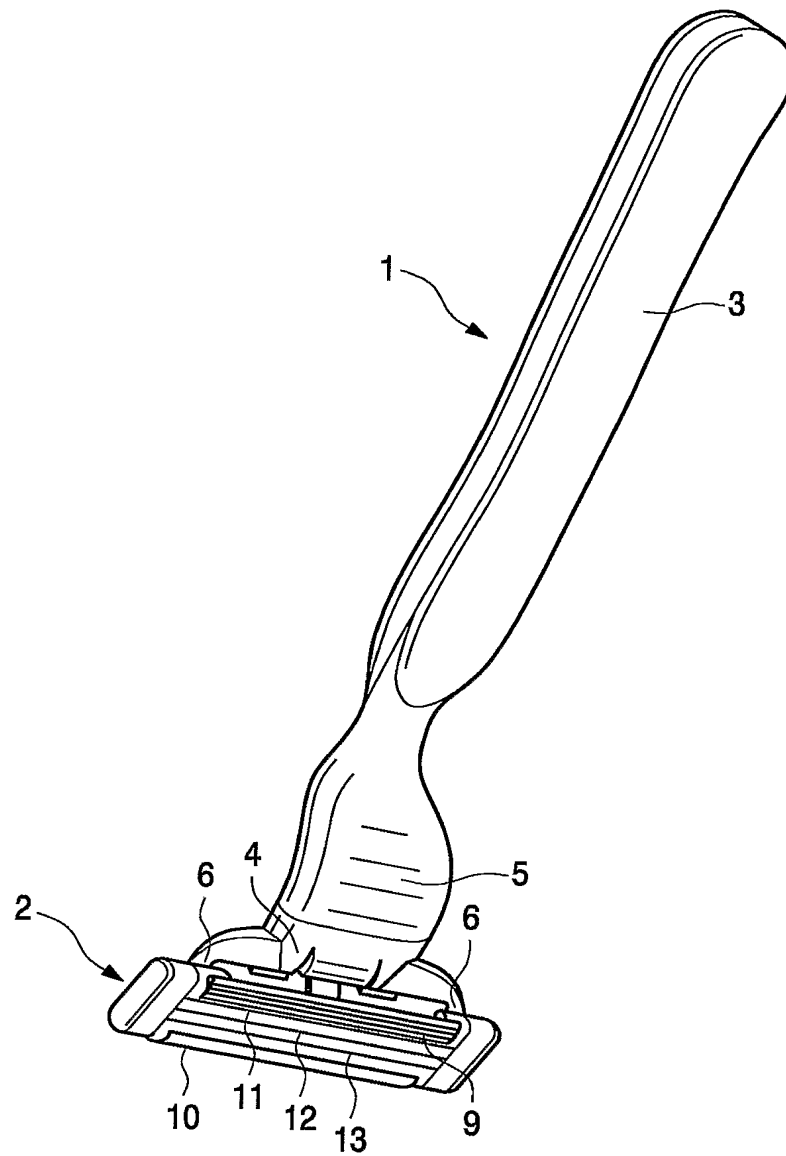


Fig.1

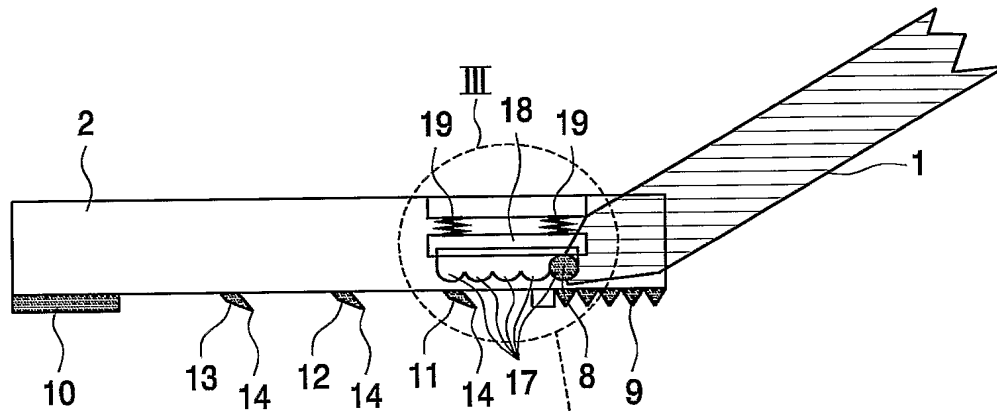


Fig.2

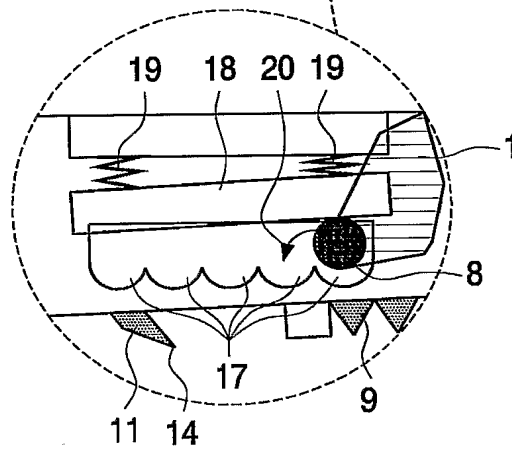


Fig.3





**PCT/IB2005/050015**

